

REMARKS

The examiner withdrew previously existing rejections and presented a new set of references in a rejection of claims 1, 2-3, 5-8, 10, 12-15 and 17 as obvious in view of Fawley Patent No. 4,676,276 taken with Nishimura Patent No. 5,758,796. The remaining dependent claims were rejected in view of the foresaid references in combination with Toth Patent No. 4,614,279.

Independent claims 1, 8, 15 and 17 remain and have been amended to more particularly point out the subject matter of the invention. Claims 1 and 15 are method claims. Claims 8 and 17 are product claims. The remaining claims depend from the noted independent claims.

Briefly the invention relates to a fluid storage tank designed to withstand seismic and paraseismic stresses. More specifically the invention involves a metal tank of a type which includes a base and an external wall or surface extending upwardly from the base with an axis also extending from the base. The wall has a height. The tank is designed to hold liquids or fluids for purposes of storage by way of example. In order to protect the tank, which is typically made of sheet metal, the external surface of the tank is coated with carbon fibre filaments. The carbon fibre filaments or fibres lie predominately in a direction substantially perpendicular to an axis of the metal tank. They are in the form of a carbon fibre fabric placed in bands which extend entirely about the circumference of the metal tank again in a direction predominately and substantially perpendicular to the axis of the tank.

As noted in the background of the invention, tanks of the type which are the subject matter of the claimed invention may be exposed to rather unique stresses in a seismic or paraseismic event. Such stresses are typically non-uniform and will cause potential buckling particularly in a tank which is typically at least partially filled with a fluid. The buckling will occur at or near the base of the tank

causing a problem known as “elephant foot”. Applicant’s invention is uniquely designed to overcome this problem observed in tanks.

The examiner relied upon the reference to Fawley as a principal reference. Fawley is associated with elongate pipes and does not involve tanks or containers of the type set forth in the specification and as now more clearly articulated in the claims of the present application. Fawley is directed to pipes through which liquid is flowing. Often that liquid or fluid is pressurized to effect flow. According to Fawley this leads potentially to ductile fracture of the pipes. Thus the disclosure in Fawley is directed to a circumstance which is quite distinct from the circumstance addressed by the present application and claims wherein fluid is stored in a tank (a static situation) and is not subjected to constant flow particularly flow in a pipe which is pressurized flow (a dynamic situation). Thus the situation in the Fawley disclosure is more typically a dynamic situation as contrasted with the static situation encountered with a tank of the present invention. In Fawley, the fluid flow is the source of the ductile fracture forces. In the present application, external forces acting on a static environment are the source of forces that cause stress on the tank.

A thin sheet metal tank from time to time thus may be stressed in a unique manner; namely, by seismic or paraseismic events by way of example. This is a static event wherein there is little or no fluid flow or pressurized fluid flow in the tank. There is no basis for ductile fracture due to fluid flow in such a tank such as would be encountered in a pipe designed to conduct fluid.

As a consequence of these differences and the fact that the Fawley reference is directed to a pipe rather than a tank, the Fawley reference is inapplicable to the subject matter of the present invention and it would not be an obvious combination or extension of that reference vis a vis the presently claimed invention. That is, hindsight appears to be necessary in order to incorporate any of

the subject matter of Fawley to address the problem and conditions of the type observed with respect to tanks as set forth in the claims of the present application as amended.

In addition, there are structural differences between the subject matter of the present invention and the references relied upon by the examiner. Fawley, of course, relates to pipes which typically are horizontal fluid conductors. This is in contrast to the storage tank of the present invention wherein static fluid is maintained or stored within the height of the tank. Of course, in such a situation sudden stresses placed upon the walls of a vertical tank (per a seismic event) as contrasted with constant fluid flow pressure in a horizontal pipe are very distinct. Dynamic forces of Fawley are different from static situation and seismic events of the present invention. Thus, the structural distinctions are an important factor in analyzing what would be considered relevant to a person or ordinary skill in the art.

In review, Fawley is directed to an issue of ductile fracture along a longitudinal axis of a pipe due to dynamic fluid flow in the pipe (for example see columns 1, lines 55-58 of Fawley). Ductile fracture propagation issues addressed in Fawley would not typically arise in an unfilled, partially filled or fully filled static metal tank as set forth in the present claims. That is, seismic and paraseismic events addressed by the claims of the present application result in effects such as buckling as discussed above.

The reference to Nishimura does not address the distinctions discussed above. Nishimura is directed to the combination of multiple layers of wrapping material to form a container. Thus Nishimura is missing features which would lead to the discovery of the present invention. In sum, therefore, the subject matter of the claims as now amended is clearly distinguishable from the prior art references cited by the examiner. Combining Nishimura with Fawley does not result in the

subject matter of the present claims. Moreover, such a combination is not related to the problems resolved by the presently presented claims and the individual references do not address the problems encountered by the presently amended claims.

In view of the foregoing amendments and remarks the claims amended are believed to be allowable. Consideration and allowance thereof is respectfully requested.

Respectfully submitted,

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Dated: March 11, 2009

By:

A handwritten signature in black ink, appearing to read "Jon O. Nelson", is written over a horizontal line.

Jon O. Nelson
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